

WHAT IS CLAIMED IS:

1. An article comprising:
a tubular body portion including at least one seam along a length thereof;
and
free-formed metal features on the tubular body portion integrally formed
to the tubular body portion by a patterned deposition of material
on the tubular body portion.
2. The article of claim 1 wherein the features are formed on an outer
surface of the tubular body portion.
3. The article of claim 1 wherein the features are formed on an inner
surface of the tubular body portion.
4. The article of claim 1 wherein the tubular body portion is shaped to form
an engine casing body and the free-formed metal features form features of an
engine casing.
5. The article of claim 1 wherein the tubular body portion includes one of a
constant profile dimension or a variable profile dimension along the length
thereof.
6. The article of claim 1 wherein the tubular body portion includes one of a
constant inner diameter dimension or a variable inner diameter dimension along
the length thereof.
7. The article of claim 1 wherein the at least one seam is welded.

8. The article of claim 1 wherein the tubular body portion and the free-formed metal features are formed of a titanium alloy.
9. A method of forming a tubular shaped article comprising steps of:
depositing a metal powder in patterned layer deposition on a metal
workpiece; and
forming a tubular body portion from the metal workpiece.
10. The method of claim 9 wherein the step of forming the tubular body
portion comprises:
contour forming the metal workpiece about a mandrel using heat and
pressure.
11. The method of claim 9 wherein the tubular body portion is formed from
a plurality of workpiece sections and comprising the steps:
contour forming the plurality of workpiece sections using heat and
pressure; and
joining the plurality of workpiece sections to form the tubular body
portion.
12. The method of claim 9 wherein the step of depositing the metal powder
in a patterned layer deposition comprises:
depositing powder from a nozzle into a molten puddle on the workpiece
in a patterned layerwise fashion.
13. The method of claim 12 and comprising:
focusing a laser on the workpiece to form the molten puddle.

14. The method of claim 9 wherein the step of forming the tubular body portion comprises:
friction stir welding edges of the workpiece.
15. An article formed using the method steps of claim 9.
16. The article of claim 17 wherein the tubular body portion is an engine casing body and the free-form features are features of an engine casing.
17. The method of claim 9 wherein the workpiece is a metal plate.
18. The method of claim 9 wherein prior to forming the tubular body portion further comprising the step of depositing metal powder in a patterned layer deposition on opposed surfaces of the metal workpiece.
19. A method of fabricating an article comprising the steps of:
depositing a metal powder in a patterned layer deposition on an outer surface of a tubular metal workpiece to form a tubular shaped article with deposited features.
20. The method of claim 19 and further comprising the steps of:
axially splitting the tubular metal workpiece to form workpiece sections;
machining the deposited features on the workpiece sections; and
joining the workpiece sections to form the tubular shaped article with deposited features.
21. An article comprising:
a tubular body portion; and

free-formed metal features on the tubular body portion integrally formed to the tubular body portion by a patterned deposition of material on the tubular body portion.